

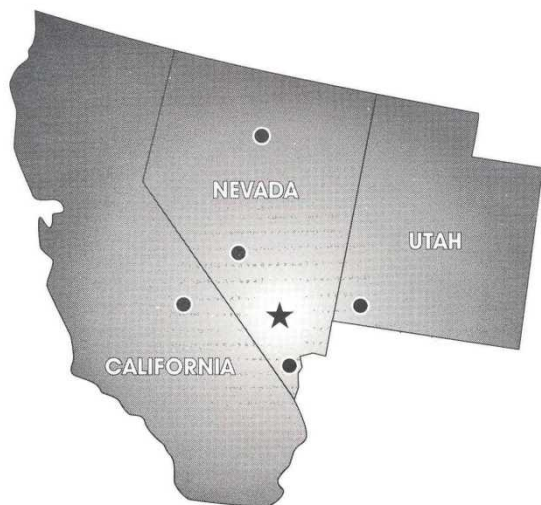
# Station Configuration Management

Randy Rembold



## Ground-based Nuclear Explosion Monitoring R&D

Sandia National Laboratories has a long history in the seismic and infrasound technologies in support of U.S. national monitoring requirements. This includes the development, design, testing, and installation of single element stations, arrays and component evaluations.



Sandia Seismic Network 1960



ARCESS Seismic Network 1986



Deployable Seismic System 1990

## Ground-based Nuclear Explosion Monitoring R&D

In 1998 Dr. Ralph Alewine, Deputy Assistant Secretary of Defense for Nuclear Treaty Programs, tasked Sandia with ensuring that all U.S. IMS stations met the specifications set forth by Working Group B. In addition, Sandia was to coordinate the certification all U.S. stations enabling their data to be used for the monitoring of the Comprehensive Test Ban Treaty.

In 2003, Sandia was tasked as Station Configuration Manager for all U.S. IMS stations. All station configuration changes go through Sandia. After approval from the U.S. configuration board, Sandia submits the CCR through the IRS system along with the necessary supporting documentation.



Ground-based Nuclear Explosion Monitoring R&D



Sandia completes a system evaluation on every U.S. IMS station

- Station design is evaluated for security and reliability considerations, and to ensure that operational procedures and documentation are adequate.
- Components of the station are tested for compliance with technical specifications, such as timing and noise levels of sampled data, and monitoring of tamper detection equipment.
- Data sent from the station in an IMS-standard format (CD1.0 or CD1.1) are analyzed for compliance with the specified protocol and to ensure that the station data (sensor and state-of-health) are accurately transmitted.
- Data availability and authentication statistics are compiled and examined for problems.

## U.S. IMS Station Certification/Revalidation Process

- Station Operator sends documentation to SNL for review
- Sensor/digitizer characterization at SNL (waveform stations)
- U.S. Configuration Board approval
- Installation Plans or CCR submitted by Sandia to PTS
- Site visit by SNL
  - Station inspection including verification of documentation
  - Equipment tested, sensitivities calculated and plots derived
  - Station operations altered and data analyzed/validated
- Certification/Revalidation documentation developed and submitted to PTS
- Sandia coordinated site visit by PTS
- PTS Formal Report with U.S. Response submitted by Sandia

Ground-based Nuclear Explosion Monitoring R&D

